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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/571,082	03/06/2006	Daisuke Namihira	FUJY 22.425 (100794-01058	2407

26304 7590 05/28/2009

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EXAMINER	
BANIHASHEMI, MICHELLE	
ART UNIT	PAPER NUMBER
4143	
MAIL DATE	DELIVERY MODE
05/28/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/571,082	NAMIHIRA, DAISUKE	
	Examiner	Art Unit	
	MICHELLE BANIHASHEMI	4143	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☒ Claim(s) *3,11* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *3/6/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 3 and 11 are objected to because of the following informalities:

Claim 3 language contains a misspelled word. "APR request" should read "ARP request". Appropriate correction is required.

Claim 11 language contains a misspelled word. "framed" should read "frame". Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. **Claim 3** is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The phrase "APR request" in the claim language was not disclosed in the specification. Appropriate correction is required.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. **Claim 11** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 11 recites the limitation "the frame relay device". There is insufficient antecedent basis for this limitation in the claim. There is no prior reference to this phrase in the claim language; there is only a reference to "A framed relay device" in the claim language. Appropriate correction is required.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claim 1, 2, 5-7, 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Doyle et al. (US Patent 7,134,012 B2) hereinafter "Doyle".

Regarding Claim 1, Doyle discloses "A frame relay device," **i.e. a router, layer 2 switch or a layer 3 switch (FIG. 1, Item 120);** "comprising: a table for registering an entry containing a pair of a MAC address and an IP address" **i.e. storing MAC address and IP address that are associated with each other in a table (FIG. 1, Item 175; FIG. 7B, Item 750; i.e. IP and MAC addresses are stored in table if a search is conducted);** "used in a process of relaying a frame in the frame relay device itself" **i.e. a frame relay device, such as a router, layer 2 switch or a layer 3 switch, performs a process of relaying a frame (FIG. 1, Item 120;**

i.e. a router located in the frame relay device); "judging unit for searching through the table for a source MAC address and a source IP address in a received frame to judge whether or not the pair of the source addresses is registered" **i.e. search table to determine if source MAC address and IP address of received frame are stored in table as a record (FIG. 1, Item 175; FIG. 7B, Item 750);** "as a relay object at a layer 3" **i.e. the record saved in the table for the received frame contains layer 3 data such as IP address (FIG. 1, Item 175; i.e. routing table contains such records saved in the table; FIG. 7B, Item 750; i.e. routing table has records saved with layer 3 data);** "and layer 3 relay processing unit for performing a layer 3 relay process" **i.e. a router to send the received frame (FIG. 1, Item 120);** "only for a frame judged as containing the pair of the source addresses registered as the relay object" **i.e. only send received frame if records exist in table matching source addresses of received frame (FIG. 6, Items 600-650; i.e. packet forwarded when matching source addresses found in table).**

Regarding Claim 2, in view of claim 1, Doyle discloses "further comprising relay object registering unit" **i.e. table storing record (FIG. 6, item 635);** "for: transmitting a query frame for querying whether or not the pair of the source addresses is normal if the pair of the source addresses of the frame is not registered in the table" **i.e. if source addresses of received frame do not match a record in the table then send a request to determine if the source addresses are valid (FIG. 6, Items 615-635; Col. 9 / lines 29-42; Col. 3 / lines 29-45; i.e. send ARP request to source IP address when MAC address not found in records of table, wait for ARP response then update table);** "judging whether or not a condition that a reply frame to the query frame is received within a predetermined time after the transmission of the query frame and a condition that information in the reply frame indicates that the pair of the source addresses

is normal are satisfied; registering an entry containing a pair of source addresses satisfying the conditions in the table;" **i.e. if 2 conditions are met: 1) ARP response to the ARP request must be received within a specific time or the ARP request expires, and 2) ARP response by nature indicates that source addresses are valid; then save source addresses in table (Col. 10 / lines 21-27; i.e. ARP request expires or ARP response received and used to determine if source MAC address is bound to source IP address; FIG. 6, Item 635; Col. 9 / lines 34-43; i.e. update table with source addresses if ARP response is received);** "and excluding a pair of source addresses failing to satisfy the conditions from an object to be registered in the table" **i.e. if ARP response is not received then either 1) the ARP request expired or 2) the IP address was not correct; so do not save source addresses to table (FIG. 6, Item 635; i.e. table only updated if ARP response received).**

Regarding Claim 3, in view of claim 2, Doyle discloses "wherein the relay object registering unit" **i.e. table storing records (FIG. 6, item 635);** "transmits an APR request frame for querying a MAC address corresponding to the source IP address of the frame as the query frame to receive an ARP reply frame as the reply frame" **(FIG. 6, Items 615-635; Col. 9 / lines 29-42; Col. 3 / lines 29-45; i.e. send ARP request to source IP address when MAC address not found in records of table, wait for ARP response that has MAC address then update table);** "and judges that the combination of the source addresses is normal when the MAC address of a query destination in the ARP reply frame is identical with the source MAC address of the frame" **i.e. ARP response used to determine if source IP address is valid when a comparison of source MAC address and MAC address in ARP response results in**

equivalence (FIG. 6, Item 635; Col. 10 / lines 21-27; ARP response used to determine if source MAC and source IP addresses are bound through comparison).

Regarding Claim 5, in view of claim 2, Doyle discloses "wherein the relay object registering unit" **i.e. table storing records (FIG. 6, item 635); "**excludes the pair of the source addresses of the frame from an object to be registered in the table regardless of whether or not the conditions for the reply frame are satisfied when an entry containing the same IP address as the source IP address of the frame is already registered in the table" **i.e. when a record exists in table for the source IP address then do not create a new record in table the source addresses (FIG. 6, Items 610, 650, 645; when source IP address found in record of table then MAC address must also be in record so just forward the packet; FIG. 6, Items 620-635; ARP response conditions are irrelevant because no ARP request is sent, no ARP response is received, and no table updated).**

Regarding Claim 6, in view of claim 2, Doyle discloses "wherein the relay object registering unit" **i.e. table storing records (FIG. 6, item 635);** "excludes the pair of the source addresses of the frame from an object to be registered in the table regardless of whether or not the conditions for the reply frame are satisfied when an entry containing the same MAC address as the source MAC address of the frame is already registered in the table" **i.e. when a record exists in table for the source MAC address then do not create a new record in table for it (FIG. 6, Items 610, 650, 645; when source MAC address is found in record of table and source IP address also exists in record then just forward the packet; FIG. 6, Items 620-635; ARP response conditions are irrelevant in this situation because no ARP request is sent, no ARP response is received, and no table updated).**

Regarding Claim 7, in view of claim 2, Doyle discloses "wherein: a registerable number of entries having the same MAC address and a different IP address in the table is predefined; and wherein the relay object registering unit excludes the pair of the source addresses of the frame from an object to be registered in the table regardless of whether or not the conditions for the reply frame are satisfied when the number of entries equal to or larger than the registerable number, each containing the same MAC address as the source MAC address of the frame, are already registered in the table" **(FIG. 6, Items 610-650; i.e. when MAC address is found in table the table is not updated).**

Regarding Claim 16, Doyle discloses "A frame judging device," **(FIG. 1, Item 120; FIG. 6, Items 600-650);** "comprising: a table for registering an entry containing a pair of a MAC address and an IP address" **i.e. storing MAC address and IP address that are associated with each other in a table (FIG. 1, Item 175; FIG. 7B, Item 750; i.e. IP and MAC addresses are stored in table if a search is conducted);** "used in a process of relaying a frame in the frame judging device itself;" **i.e. device that compares addresses receives and sends data (FIG. 1, Item 120; FIG. 6, Items 600-650);** "and judging unit for searching through the table for a source MAC address and a source IP address in a received frame to judge whether or not the pair of the source addresses is registered" **i.e. search table to determine if source MAC address and IP address of received frame are stored in table as a record (FIG. 1, Item 175; FIG. 7B, Item 750);** "as a relay object at a layer 3" **i.e. the record in the table for the received frame contains layer 3 data such as IP address (FIG. 1, Item 175; FIG. 7B, Item 750).**

3. Claims 11-15 rejected under 35 U.S.C. 102(e) as being anticipated by Kwan, Philip (US Patent 7,523,485 B1) hereinafter "Kwan".

Regarding Claim 11, Kwan discloses "A framed relay device," **i.e. a router, layer 2 switch or a layer 3 switch (FIG. 2, Item 234);** "comprising: a table capable of registering only one receivable MAC address for each port included in the frame relay device itself; **i.e. one MAC address can be stored with each port in ACL-CAM table;** "judging unit for judging, for a frame received at each port, whether or not a pair of the same MAC address and the same port number as a pair of a source MAC address and a receiving port number of the frame is registered in the table;" **i.e. compare received port number and MAC address with the record in the table (Col. 4 / lines 25-33; Col. 5 / lines 26-30; Col. 6 / lines 30-37; Col. 8 /lines 56-67; Col. 7 / lines 16-30).** "and relay unit for performing a layer 2 relay process only for a frame containing the pair of the source MAC address and the receiving port number judged as being registered" **i.e. if there's a match then forward data (FIG. 4, Items 404 -408, 410).**

Regarding Claim 12, in view of claim 11, Kwan discloses "further comprising a MAC address learning section for judging whether or not the pair of the source MAC address and the receiving port number is valid to register a valid pair of a source MAC address and a receiving port number in the table when the source MAC address of the frame is not registered in the table" **i.e. ACL-CAM table stores MAC address with corresponding port number and ARP requests can validate addresses (FIG. 4, Items 406, 414-424; Col. 5 / lines 26-30, 64-67; Col. 4 / lines 25-33).**

Regarding Claim 13, in view of claim 12, Kwan discloses "wherein the MAC address learning section registers a pair of a source MAC address and a receiving port number of a frame first received after the port is brought into a frame receivable state as the valid pair in the table" **i.e. ACL-CAM table stores MAC address with corresponding port number and ARP**

requests can validate addresses (FIG. 4, Items 406, 414-424; Col. 5 / lines 26-30, 64-67; Col. 4 / lines 25-33).

Regarding Claim 14, in view of claim 11, Kwan discloses "wherein the MAC address learning section is capable of setting for each port number whether or not to judge validity of the pair of the source MAC address and the receiving port number" **(Col. 8 / lines 6-16; administrator is capable changing settings such as configuring ports).**

Regarding Claim 15, Kwan discloses "A frame judging device," **i.e. device that compares source addresses with table data (FIG. 4, Item 408);** "comprising: a table capable of registering only one receivable MAC address for each port included in the frame judging device itself;" **i.e. one MAC address can be stored with each port in table;** "and judging unit for judging, for a frame received at each port, whether or not a pair of the same MAC address and the same port number as a pair of a source MAC address and a receiving port number of the frame is registered in the table" **i.e. compare received port number and MAC address with the record in the table (Col. 4 / lines 19-33; Col. 5 / lines 26-30; Col. 6 / lines 30-33; Col. 8 /lines 56-67; Col. 7 / lines 16-30).**

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 4 rejected under 35 U.S.C. 103(a) as being unpatentable over Doyle et al. (US Patent 7,134,012 B2) hereinafter "Doyle", in view of Anello et al. (US Patent 6,195,356) hereinafter "Anello".

Regarding Claim 4, in view of claim 2, Doyle does not disclose "wherein the relay object registering unit transmits a ping frame containing the source MAC address and the source IP address of the frame respectively as a destination MAC address and a destination IP address as the query frame to receive a ping reply frame as the reply frame and judges that the combination of the source addresses is normal when the source MAC address and the source IP address of the ping reply frame are respectively identical with the source MAC address and the source IP address of the frame"; **however, Anello teaches MAC addresses can be obtained using a "Ping" program (Col. 5 / lines 22-25). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Doyle's ARP request technique of obtaining MAC addresses with Anello's teaching of obtaining the same with the ping program. One of ordinary skill in the art would have been motivated to modify Doyle's teachings with Anello because the ping program is a well known technique that provides a simplistic alternative option to obtain the same address (Col. 5 / lines 9-17, 35-46). Once the ping program, instead of the ARP request, obtains the MAC address, Doyle discloses that MAC address binding to IP address can be determined by comparing the source MAC and IP addresses with the obtained addresses from the mechanism of obtaining the MAC address (FIG. 6, Item 635; Col. 10 / lines 21-27; i.e. determine if source MAC and source IP addresses are bound through comparison).**

6. Claims 8, 9 and 10 rejected under 35 U.S.C. 103(a) as being unpatentable over Doyle et al. (US Patent 7,134,012 B2) hereinafter "Doyle", in view of Kwan, Philip (US Patent 7,523,485 B1) hereinafter "Kwan".

Regarding Claim 8, in view of claim 1, Doyle does not disclose "wherein the table stores an entry containing a MAC address and a destination port number corresponding to the MAC address and is constituted by providing a field of an IP address corresponding to the MAC address and a field for storing information indicating whether or not it is a relay object for each entry of the MAC address table referred to so as to find a destination port in the layer 2 relay of a frame, the frame relay device further comprising: layer 2 relay processing unit for referring to the table to perform the layer 2 relay process of a frame received by the frame relay device itself and deleting unit for deleting an entry unused for a given period of time from the table"; **however, Kwan teaches that a MAC address and port number are stored in the ACL-CAM table and IP address is mapped to MAC address in a way to be able to retrieve the associated port number to forward data on that port. Kwan also teaches that when it is detected that devices are no longer coupled to ports then the source IP addresses can be deleted from the table. It would have been obvious to one of ordinary skill in the art at the time of the invention to store MAC address and port number in an ACL-CAM table with mappings to IP address and to delete unused records in the database table. One of ordinary skill in the art would have been motivated to modify Doyle's teachings of identifying the IP and MAC address of a received packet with Kwan's teachings of mapping the IP and MAC addresses to the port number in a database table to facilitate identification of which port is associated with the IP address for data packet forwarding**

and in order to free table memory to allow new source IP addresses to have access on the port (Col. 4 / lines 19-33; Col. 5 / lines 26-30; Col. 5 / lines 9-17, 35-46; (Col. 8 / lines 6-16; i.e. administrator is capable of deleting single table entry or all table entries).

Regarding Claim 9, in view of claim 8, Doyle discloses "wherein, when an entry containing the pair of the source addresses of the frame is to be registered in the table, if another entry containing the same MAC address as the MAC address forming the pair of the source addresses is already registered in the table," **i.e. source MAC address already exists in table (Col. 13 / lines 14-35);** "the entry is registered so as to be found in a search prior to the another entry in a process executed by the judging unit" **(Col. 2 / lines 37-44; Col. 13 / lines 14-35; Examiner takes Official Notice that it is well known that in the situation where multiple IP addresses are associated with MAC address that the order and method of storing them in table and the specific query determining the order of query results returned from searching the table is configurable by system administrator. It is well known that records could be stored and searched by date fields to make the most recently stored MAC/IP address pair be retrieved first in a search).**

Regarding Claim 10, in view of claim 1, Doyle does not disclose "wherein the frame relay device is configured to be capable of setting whether or not the processes executed by the judging unit and the relay object registering unit are performed for each port included in the frame relay device itself"; **however, Kwan teaches that an administrator is capable of changing settings such as configuring ports to execute various units under certain circumstances (Col. 8 / lines 6-16). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide an administrator the capability to make**

configuration changes. One of ordinary skill in the art would have been motivated to modify Doyle's teachings of a frame relay device that receives and forwards data packets with Kwan's teachings of incorporating administrator configuration capabilities of how the device operates in order to provide flexibility to the mechanism's ability to address domain specific needs (Col. 5 / lines 9-17, 35-46; (Col. 8 / lines 6-16).

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHELLE BANIHASHEMI whose telephone number is (571)270-5157. The examiner can normally be reached on MONDAY THROUGH THURSDAY FROM 9AM - 4PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, KIEU-OANH (KRISTA) BUI can be reached on (571)272-7291. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KIEU OANH T BUI/
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May 26, 2009